

VOLTAGE: THE KEY TO REBUILDING YOUR HEALTH

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“The key to making chronic disease better is making a single cell work. If you give the body the things a single cell needs to work, the body often has the power to heal all of the cells of the body. That means you get well!”

....Dr Jerry Tennant

In the mid 90's Dr Jerry Tennant was one of the top three ophthalmic surgeons in the world. Then, in a matter of months, his career was ended by a mysterious ailment that left him disabled and barely clinging to his life. A pioneer in lasik surgery, Dr Tennant was responsible for most of the research done on the excimer laser for VISX. He also performed over 1,000 lasik operations in the United States and about 2000 cases abroad. These surgeries actually contributed to his decline in health. In the early days of lasik operations, it was believed that ordinary surgical masks were sufficient to protect doctors from contamination. Nobody suspected that viruses existing in a patient's eyes could possibly harm the surgeon.

But each time Dr. Tennant performed a lasik procedure on a patient, the laser would strike the eye and release viruses that drifted upward through his mask into his nose and brain. In time he developed encephalitis and a bleeding disorder that manifested as spastic movements and an inability to remember even how to write a prescription. Diagnostic tests confirmed he had three viruses in his brain, but no one knew how to treat them. Dr. Tennant's physicians told him there was nothing that could be done to help him. So, on November 30, 1995, he was forced to retire.

He spent almost seven years in a fog that rarely lifted. Too fatigued to function on any level, Dr. Tennant slept about 16 hours each day. During the two to three hours per day when he could think, he read books or newspapers until, like a light switch, his brain would turn off and he would no longer be able to understand what he was reading.

With his waking/thinking time severely limited, Dr. Tennant gradually began to realize that if he was going to get well, it was up to him to find a way since modern American medicine had no answers. So he started reading cellular biology books. As his knowledge grew, so did his belief in the importance of learning how to get a single cell to work correctly. If he could do that, in time, all of his cells would work correctly.

Each of the cellular biology books he read gave passing reference to the fact that cells function in a narrow range of pH, but the books said little more. Dr Tennant began to look closely at pH. He came to realize that in addition to acidity and alkalinity, pH measures the voltage in a solution. Could this be the key he was searching for? Gradually, Dr. Tennant began to understand that cells must have enough voltage to work and that chronic disease is associated with loss of voltage. His next step was to find out how to measure the voltage and keep it at optimal levels. Following this path, he was finally able to heal himself. The article outlines some of Dr. Tennant's most important discoveries about rebuilding and maintaining good health.

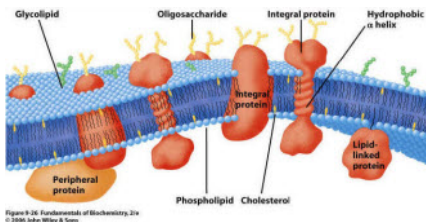
Dr. Tennant's Principles

- The body doesn't get well by making damaged cells work correctly. It gets well by making new cells that work correctly.
- The process of rebuilding a new and healthy you is based on the fact the body is constantly replacing itself. Your body grows new retinal elements every two days, new skin in six weeks, a new liver in eight weeks, new nerve cells in a period of months. As each new cell is built, the body seeks proper building materials from which to construct the cell. If the body cannot find good healthy materials, it will use whatever is available.
- To make new cells, the body must have raw materials (nutrition) and sufficient cellular energy to use the materials. If any of these are lacking, pharmaceuticals and/or surgeries will not help.
- Human cells are designed to run at about -20 millivolts (or pH of 7.35). The body has the ability to heal itself of many ailments if it is supplied with sound nutrition and proper cellular energy.

How Do Healthy Cells Work?

Our bodies are made up of trillions of cells. While they are all specialized according to the work they do, they all have the same basic structures. On the outside is a flexible membrane that encloses and protects the cell's contents. It also regulates what moves into and out of the cell and maintains the cell's electric potential, which is essential to its ability to do the work required.

Inside the cell are at least one nucleus and some cytoplasm, a jellylike substance that consists mostly of water and dissolved proteins. The nucleus acts as a control center for the cell, while the cytoplasm is home to many different structures called organelles (little organs). Each of the organelles plays a different role. The ones we are most concerned with are the mitochondria, which function as the *power stations* of the cell. The number of mitochondria varies for different types of cells, but, under optimal circumstances, up to hundreds of mitochondria can exist in a single cell. Because cells need energy for everything they do, the importance of mitochondria cannot be overemphasized.



Cell Membranes, Mitochondria: Capacitors and Rechargeable Batteries

Cell membranes are made up of opposing pairs of phospholipids, a specialized type of fat and loose proteins. Each phospholipid molecule has a ball on one end that works as an electron conductor and two legs that work as electron insulators. These conductors and insulators form a capacitor whose purpose is to store electrons. In effect, the membrane functions as a small battery that stores voltage for the cell. All of the energy generated for the use of a cell

occurs within the mitochondria via a type of rechargeable battery system known as ATP/ADP. ATP exists when the battery is charged and ready for work.

As energy is spent, the battery becomes ADP. Recharging takes place as electrons are brought in from the cell membrane and mixed with a small amount of phosphorus. This process takes place approximately 70 times per day in every cell in the body. If the ATP/ADP system is not functioning properly, cells cannot generate the power they need to keep the body working. In addition, when the number of mitochondria that are supposed to be functioning in a cell is reduced for any reason, the cell's ability to provide for its own energy needs is diminished.

Energize Your Healing Process

Chronic disease is associated with a lack of cellular energy. This is one of the key reasons why traditional Western medicine has been unsuccessful in finding cures for so many of today's most common health problems. Pharmaceuticals help only in alleviating some of the symptoms, not in providing genuine long-term cures. In fact, bad reactions to pharmaceuticals are the leading cause of death in the U.S. All drugs have side effects that range anywhere from annoying to life-threatening. Physicians have always known that, given time and the right conditions, the body has the ability to cure itself of many if not most diseases. A healthy diet, exercise, and adequate rest go a long way toward curing many problems. But once a chronic disease has established itself, these basic things may not be enough. The body may need to increase the amount of energy in its cells so the cells can do the work they were designed to do. With adequate energy, the effects of a healthy diet, exercise, and rest are magnified throughout the body.

So..... how do we increase the amount of energy (electrons) to our cells? Let's take a look at the conditions that enable our "batteries" to work at higher levels of efficiency.

Electrons can be obtained from many sources, including:

1. The Tennant Biomodulator
2. Unprocessed food
3. Green leafy vegetables
4. Alkaline water
5. Dark chocolate
6. Sunshine
7. Working or standing in soil (walking barefoot on the ground)
8. Fresh air, wind, etc. Taking advantage of these resources helps your body to create a pool of electrons.
9. Exercise
10. Cranial sacral pump

Common Ways Electrons are Taken From the Human Body

1. Acidic water (tap water, chlorinated water, fluoride, most bottled water)
2. Carbonated beverages
3. Caffeinated beverages (pop, coffee, tea)
4. Alcoholic beverages
5. Cooked food
6. Processed food
7. Healers/doctors who touch their patients lose electrons to patients
8. Hugs transfer electrons from one person to another
9. Parent holding sick child: child gets well quicker and parent left tired
10. Moving air: wind, air conditioning, fans and hair dryers

Put the Power of pH to Work for you

Because the human body is 75% water, solutions are always in play in our bodies. In fact, much of the transfer of voltage occurs ionically or via fluids. It is important to realize that fluid solutions can either carry additional electrons, making them electron donors, or remove electrons, making them electron stealers. Remember, electrons are necessary for cells to perform their work.

Removing electrons is counterproductive. In fact, free radicals are molecules that are missing electrons and looking to steal them from other molecules. This makes them unstable and dangerous. Free radicals create cellular chaos that can lead to a vast array of problems. On the other hand, antioxidants are electron donors. That's why antioxidant foods are so important for good health. When a mother tells her child to eat their broccoli, she is actually telling them to consume antioxidants or electron donors.

We can learn whether a solution is an electron donor or an electron stealer by measuring its pH. If it is acidic, it is an electron stealer. The pH scale measures how acidic or alkaline a solution is. It ranges from 0 to 14, with 7 being considered neutral. As you move down the scale from 7, you get a solution that is increasingly acidic (6 is acidic, 5 is even more acidic, etc.) Moving up the scale from 8 to 14 represents increasing alkalinity (8 is alkaline, 9 is more alkaline than 8, etc.) Science has long known that healthy people have an alkaline pH and that, in fact, the human body operates best when the pH is approximately 7.2 to 7.35. Chronic disease and pain are almost always associated with an acidic pH.

Oxygen and Voltage

Without oxygen, the body and all of its cells can't work. As oxygen levels decrease, so does health. In 1996, Otto Warburg, one of the twentieth century's leading cell biologists, received a Nobel Prize for discovering that cancer cannot grow when normal oxygen levels are present.

The amount of oxygen in cells is determined by voltage. If a cell has adequate voltage, it will also have adequate oxygen. If cellular voltage is low, the amount of oxygen in the tissues will be low. This applies to metabolism, as well. When voltage and oxygen are low, metabolism becomes anaerobic, which means that oxygen is unavailable. Anaerobic metabolism is very inefficient.

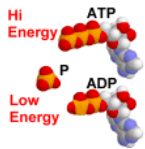
The Bohr Effect and Hyperbaric Oxygen Treatments

The Bohr Effect states that the amount of oxygen that will dissolve in a solution is dictated by the amount of voltage in the solution. Remember, the human body is 75 percent water, which means this is a key fact for health. As voltage drops, less oxygen can be dissolved into cells. In some cases, hyperbaric oxygen treatments are used to increase oxygen levels in tissues. As oxygen levels rise, so does voltage. When voltage is normal, oxygen can enter cells automatically as needed.

In addition to acidity and alkalinity, pH also refers to voltage, but the scale in this case ranges from -400 to +400 millivolts, with 0 in the middle. Moving down the scale from 0 into the negative range indicates increasing levels of health, while moving up the scale into the positive range indicates increasing dysfunction. Healthy adults normally measure -20 millivolts (mV) of energy, which translates to a pH of 7.35. Children, young adults, and athletes commonly measure -30 mV of energy. Problems occur when a body's voltage drops below the necessary operating level of -20 mV. Thus at -15 mV, a person is tired. At -10 mV, he/she is sick.

At -5 mV organs are no longer able to function properly. Problems resulting from continued drops in voltage include chronic pain, a decrease in oxygen levels, and infections. (Note: Infections continue to increase damage by feeding on healthy cells.) Remember, moving up this scale into the positive range increases vulnerability to illness. At +30 mV, the cellular electrical system malfunctions, reversing cellular polarity (the way electricity is conducted through cells). Damage also occurs to DNA, and cancer is able to gain a foothold in the body and grow.

Why Do Cells Lose ATP/ADP Power?



The most common reasons for a loss of ATP/ADP power include the cell membrane losing its ability to store electrons and/or a depletion of the number of functioning mitochondria. These conditions can be brought about by:

1. Consuming trans or “plastic” fats, which destroy the cell membrane
2. Hypothyroidism, which reduces the number of mitochondria in cells
3. Heavy metals such as lead, mercury, and cadmium
4. Dental infections from decay in teeth, root canals, and in jaw bone
5. Toxins

1. Trans Fats: Dangerous Plastics That Destroy Health

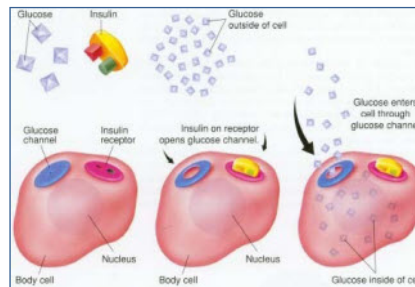


Many years ago food manufacturers recognized that they were losing significant profits because their products were spoiling. In response, they did two things: They added chemicals to foods to keep them from spoiling, and they began to cook fats for long periods of time to stabilize them. The chemicals, we now know, are problematic for the health of the person consuming them. The fats are too. The very long cooking process (hydrogenation) changes them from a healthy substance into something that is only one carbon atom away from plastic, and that has a profound influence on the structure of cell membranes.

It works like this. When a cell wears out, your body makes a new one. First, it looks around to see what building materials are available to make the new cell. If all you have given your body is “plastic” fat (partially hydrogenated or trans fats), the new cell membrane will be made from plastic. The result is like wrapping individual cells in cellophane. A healthy cell membrane is designed to allow certain things to go in and out of the cell. It can't function properly when the membrane is made of cellophane.

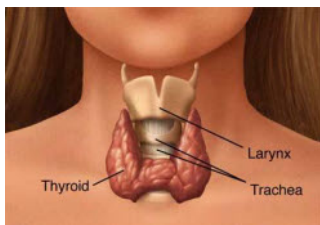
Imagine that one of your cells sends a message to your brain telling it that it is hungry. Your body will respond by sending the cell some glucose and insulin. What happens when the glucose can't get through the cellophane? The cell keeps on complaining that it's hungry, and your body keeps on sending it more insulin and glucose. Much of the insulin and glucose will be put into fat cells. But the original cell will continue to complain that it is hungry, and your brain will continue to make you want to eat so you can try to resolve the hunger issues. Even so, very little glucose will get into your cells. In time, you will become obese and your pancreas will wear out from making so much insulin.

With all that glucose in our bloodstream, you will be diagnosed with type 2 diabetes. Drugs can be prescribed to lower the levels of sugar in our bloodstream, but your cells will still be coping with the effects of being made out of plastic. Eventually, they will begin to wear out and you will get symptoms of worn out cells: heart attacks, strokes, liver failure, kidney failure, blindness, chronic fatigue, etc. Obviously, if you want to get well you must stop consuming plastic fats. In today's world it is easier said than done. Even if you change the fats you use at home, most restaurants use trans fats for frying foods. If you eat out, you must stop eating fried foods or choose a restaurant that you know doesn't use plastic fats. Most cheese is also made from plastic fats, which means that avoiding cheeseburgers and french fries is a must. Overall, it's safe to say that fast food isn't dangerous for your health because it is fast.....it's dangerous because it's plastic!



If you continue to feed your body plastic fats, you will never get well. But if you give your body good fats, along with the other things it needs, your body will thank you by becoming vibrant and healthy. Examples of good fats include avocados, raw nuts, safflower oil, sunflower oil, olive oil, borage oil, corn oil, coconut oil, etc. In general, good fats are those that will spoil. Coconut oil is better for cooking than olive oil because it withstands heat better.

2. The Role of Hypothyroidism in Metabolic Syndrome



The total number of mitochondria in cells, and thus the total number of rechargeable ATP/ADP batteries, is dictated by the amount of functional thyroid hormone present in cells. If normal levels of thyroid hormones are reduced, the body develops hypothyroidism and the number of mitochondria in individual's cell is restricted. Hypothyroidism is a very common condition that is implicated in what is called metabolic syndrome (formerly known as syndrome X). Many doctors believe this is the basic problem behind most of the illness in the United States today.

Symptoms of metabolic syndrome include insulin resistance, high blood pressure, central obesity (overweight with fat deposits mainly around the waist), decreased HDL or "good" cholesterol, elevated triglycerides and an increased risk for clotting. Metabolic syndrome may lead to stress, migraine headaches and even to ADHD. Left uncorrected, it can cause heart attacks, strokes, and fibromyalgia. Eventually, it will lead to cancer.

Some symptoms of *Hypothyroidism* and *Type II Hypothyroidism* include:

- Fatigue
- Decreased sex drive
- Candida (yeast infections)
- Dry skin
- Premature aging
- Infertility
- Constipation
- P.M.S.
- Repeated infections
- Headaches
- Hypertension
- Brittle nails
- Mental disorders
- Diabetes
- MS
- Heart attack/stroke
- Hair loss
- High cholesterol
- Intolerance to heat
- Muscle weakness
- Weak immune system
- Overweight
- Arthritis/gout
- Low blood pressure
- Depression
- Osteoporosis
- Joint/muscle pain
- Heart palpitations
- Cystic breast/ovaries
- Chronic fatigue
- Intolerance to cold
- Hyperinsulinemia
- Sleepiness

Causes of Hypothyroidism: Iodine Deficiency and Bromide Toxicity

So what are some of the cause of Hypothyroidism? One of the most important is iodine deficiency. Without iodine, the thyroid gland is unable to produce sufficient amounts of thyroid hormone. This leaves cells unable to function normally. In response, the body develops hypothyroidism. Although adults need 12-15 mg of iodine per day, Americans tend to be iodine deficient because it is not readily available in our foods. The iodine that once existed in our soils has long since been washed away, and fruits and vegetables grown in this soil are lacking in this essential nutrient. Today, while minute amounts are added to some table salts, the total isn't enough to provide adequately for our dietary needs. *Moreover, some of the companies producing table salt substitute bromine for iodine because it is cheaper. But bromine, in addition to not being a nutrient our cells need, is toxic.*

Bromine Toxicity Destroys Your Thyroid and Metabolism

If you are like most people, you probably haven't spent much time thinking about how much bromine you're absorbing from your car upholstery or your Mountain Dew. But bromine toxicity is a definite danger from some surprising sources, and it can wreak havoc on your health.

Bromines All Around You

Bromines are common endocrine disruptors and are part of the halide family, a group of elements that includes fluorine, chlorine and iodine. What makes it so dangerous is that it competes for the same receptors that are used to capture iodine. If you are exposed to a lot of bromine, your body will not hold on to the iodine that it needs. And iodine affects every tissue in your body -- not just your thyroid. You are already exposed to far too much chlorine and bromine. Bromine can be found in a number of places in your everyday world, including:

- Pesticides (specifically methyl bromide, used mainly on strawberries, predominantly in California)
- Plastics, like those used to make computers
- Bakery goods and some flours often contain a "dough conditioner" called potassium bromate
- Soft drinks (including Mountain Dew, Gatorade, Sun Drop, Squirt, Fresca and other citrus-flavored sodas), in the form of brominated vegetable oils (BVOs)
- Medications such as Atrovent Inhaler, Atrovent Nasal Spray, Pro-Banthine (for ulcers), and anesthesia agents
- Fire retardants (common one is polybromo diphenyl ethers or PBDEs) used in fabrics, carpets, upholstery, and mattresses
- Bromine-based hot tub and swimming pool treatments

Now back to iodine deficiency. Every organ in the body that secretes a substance requires large amounts of iodine to carry out this function. These organs include: the thyroid gland (with the highest concentration of iodine), the salivary glands, cerebrospinal fluid and the brain, the substantia nigra of the brain, the choroid plexus, intestinal mucosa or lining, breasts, ovaries, prostate, the ciliary body of the eye, the nose, sinuses, and the mouth. Interestingly, these are the most common sites in the body for cancer among Americans. Half a world away, the Japanese have different eating patterns than we do in the U.S. Japanese people consume large amounts of iodine in their foods. Coincidentally, they have the lowest incidence of cancer in the world (except for stomach cancer, which may be related to other aspects of their diet).

Iodine plays a critical role in the health of people of all ages even before they are born. Fetal iodine levels are five times that of an expectant mother. If the expectant mother's levels of iodine are too low, then miscarriage, birth defects, failure to thrive once the baby is born, and mental retardation can result. It is very important for women who will become pregnant to protect their levels of iodine. Iodine deficiency is the leading cause of intellectual impairment in the world. (What does this say about the increasing rates of ADD and ADHD in our society?) Hypothyroidism is also the leading cause of violent behavior in the world).

Another Cause of Hypothyroidism: Fluoride

According to Mark Starr, M.D., author of *Hypothyroidism Type 2: The Epidemic*, up to 90 percent of Americans have undiagnosed hypothyroidism. He says this is the reason for our widespread and growing problems with mental and physical health. Starr believes the primary cause for this epidemic is the presence of fluoride in our water and dental products. He maintains the problem can be treated easily and inexpensively. The first step is to stop exposure to fluoride. Of course, most doctors will not give this advice to patients.

Type I and Type II Hypothyroidism

- With Type 1 Hypothyroidism, the thyroid does not produce sufficient amounts of hormone to maintain “normal” blood levels of hormones, which in turn will maintain normal blood levels of thyroid-stimulating hormone (TSH) produced by the pituitary.
- With Type 2 Hypothyroidism, the thyroid gland produces “normal” amounts of hormone, but the cells are unable to utilize the hormone properly. Some experts call this thyroid hormone resistance (which may be regarded as similar to insulin resistance).

Laboratory tests showing inadequate bloodstream levels of thyroid hormone make it easy to diagnose Type 1 hypothyroidism. However, lab tests fail to detect Type 2 hypothyroidism because, despite adequate bloodstream hormone levels, the cells are unable to accept and utilize that hormone (for a variety of reasons, which I’ll address in a moment). Since the main problem lies with the cells that are actually utilizing the hormone, a different approach needs to be taken when testing for – and to a certain extent, when treating – Type 2 hypothyroidism.

Since many more people suffer from Type 2 than Type 1 hypothyroidism, and because Type 2 is widely misunderstood and misdiagnosed, this article will focus on Type 2: its manifestations, the best way to diagnose it (it’s not with lab tests), and its treatment. For this article, I have drawn heavily from Mark Starr’s book, *Hypothyroidism Type 2: The Epidemic*.

Dr. Starr became interested in the subject for both personal and professional reasons. More than a dozen years ago, he embarked on a quest to heal his own chronic pain, fatigue, and allergies after receiving no relief from the majority of physicians with whom he consulted. Professionally, while treating thousands of people who suffered chronic pain alongside a wide range of disorders, he discovered a pattern. The underlying cause or contributing factor to their pain was low thyroid function. Dr. Starr’s book is the result of over a decade’s worth of intensive research and writing about the history, problems, politics, personnel, literature, case studies, and treatment related to hypothyroidism.

The Thyroid Gland and Metabolism

Located in the front part of the neck, tucked around the windpipe, the thyroid gland’s job is to convert iodine into hormones that control the cell’s mechanism for changing raw materials into useable energy. This process is called metabolism. The thyroid gland works by combining iodine with an amino acid to produce hormones. The thyroid hormones are then released into the bloodstream and transported throughout the body. When the level of thyroid hormones drops too low, the pituitary gland steps in by producing thyroid stimulating hormone (TSH), which in turn pushes the thyroid gland to start producing more thyroid hormones.

The most active form of thyroid hormone is known as T3. It is responsible for signaling all the cells in the body that they need to get busy and do their work. If T3 is not produced, the signals aren’t transmitted and the cells don’t function as they should. In the brain, for example, a lack of T3 decreases the level of serotonin, the “feel good hormone” we rely upon for emotional well being. If T3 is not available, serotonin levels drop and we become depressed and anxious.

Testing For Thyroid Deficiency

When a doctor decides to check the function of the thyroid gland, he or she begins by ordering blood tests that measure levels of TSH, T3, and another thyroid hormone called T4. While T4 is less active in the metabolism process than T3, it nonetheless plays an important role. Frequently, the results of these tests fall within a normal range. So patients are told they are fine and sent on their way.

But the tests may not be accurate because iodine is a halogen, a class of non-metal elements that include fluoride, chlorine, bromine, and astatine. The problem in this scenario is that fluoride is a bully. Whenever an atom of fluoride is present along with an atom of any other halogen, the fluoride will push the other halogen aside and take its place. Normal thyroid hormone is made up of an atom of tyrosine surrounded by four atoms of iodine. When fluoride is present, it displaces the iodine. The result is a substance that looks normal in lab tests, but doesn’t work properly in the body. And thanks to widespread fluoridation of our water and its inclusion in so many dental products and treatments, most Americans are exposed to fluoride on a continuing basis. This is why hypothyroidism is such a problem in our culture.

Additional Causes of Hypothyroidism

- Estrogen dominance caused by soy products, petrochemicals, fuel exhaust, estrogenic hormones in meat and chickens, plastics, propylene glycol (an ingredient in deodorants), sodium laurel sulphate in toothpaste, shampoos, herbicides, pesticides and ointments. These potent estrogenic substances block the production of thyroid hormone and greatly magnify the incidence of estrogen-dependent cancers. Researchers have found that virtually all males and females in developed nations have estrogen dominance, which occurs when there is more estrogen in a person's system than progesterone.
- Antibiotics, chlorine from our water purification systems, fluoride, and NSAID drugs used for arthritis kill healthy bacteria in the intestinal tract. This results in an overgrowth in the intestines of Candida, fungus, mycoplasma, and anaerobic bacteria (yeast syndrome). These dangerous organisms release powerful neurotoxic substances into the bloodstream that damage the hypothalamus, often resulting in multiple endocrine disorders including underactivity of the thyroid gland.
- Mercury that is released from dental amalgams is toxic to the thyroid gland.
- Selenium deficiency is related to a lack of trace minerals in our soil. Proper conversion of precursors into thyroid hormone depends on a selenium containing enzyme that is unfortunately lacking for most of us. This creates a major problem converting T4 to T3.
- Diagnostic x-rays of teeth, neck, and spine injure the thyroid gland.
- Perchlorates widely found in drinking water slow the production of thyroid hormone by blocking the re-uptake of iodine. Perchlorates are salts derived from perchloric acid. They occur both naturally and through manufacturing and have been used as a medicine for over 50 years to treat hyperthyroidism, which occurs when the thyroid gland is too active. Levels above 0.007 milligrams per kilogram per day (mg/kg-d) can temporarily and reversibly inhibit the thyroid gland's ability to absorb iodine from the bloodstream. Thus, perchlorates are a known cause of goiter. As of April 2007, the EPA has not been able to determine whether or not perchlorates are present in sufficient levels in our environment to require a nationwide regulation on how much should be allowed in our drinking water.

Mucin

As hypothyroidism develops, the body starts making mucin. A substance that resembles clear corn syrup, mucin is deposited throughout the tissues along with fat molecules. As hypothyroidism continues on its course, people start gaining weight, a pattern typical of metabolic syndrome. Generally they are overweight with fat concentrated in the middle of the body. A simple way to check for mucin in your tissues is to pinch the skin over your deltoid muscle between your shoulder and arm. Under normal circumstances your fingers should nearly touch. Any bulk you feel in that area is caused by an accumulation of mucin.

Results of having mucin in your tissues:

- Mucin makes it difficult for blood to flow through tissues. The body responds by increasing blood pressure to force blood through the tissues. This is called hypertension.
- Mucin surrounds cell membranes, making it difficult for insulin to access the membrane. Insulin resistance develops, leading to type 2 diabetes.
- Mucin is deposited in the organs of the abdomen, resulting in "beer belly" obesity

3. Heavy Metals

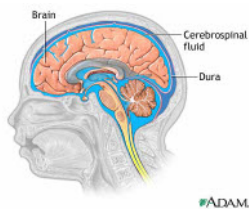
Heavy metals such as lead, mercury, and cadmium destroy mitochondria. Let's take a look at mercury. Mercury acts as a poison to the brain and nervous system. In adults, mercury poisoning has been linked to fertility problems, memory and vision loss, and trouble with blood pressure regulation. It can also cause extreme fatigue and neuro-muscular dysfunction. Pregnant women and small children, whose brains are still developing, are especially at risk. Fetuses and infants who are exposed to mercury may develop:

- Mental retardation
- Cerebral palsy
- Deafness
- Blindness

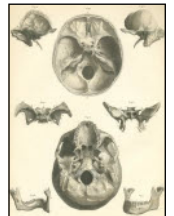
THE BOWLING BALL SYNDROME

The "Bowling Ball" syndrome was described by Robert Boyd, DO, from Ireland. Boyd stated that the head weighs about the same as a bowling ball. Because the body weighs so much, the body will always put the upper cervical vertebra under the center of gravity of the head to keep the head upright. When the sphenoid bone (keystone) is moved, the other cranial bones follow. This moves the center of gravity on the skull causing the compensatory changes:

1. The two sides of the face are asymmetrical
2. The jaw moves to one side causing TMJ
3. One eyelid is droopy (ptosis) and the opposite cheek is flattened.
4. One ear canal is lower than the other
5. Obstructions of the ocular canal can increase intraocular pressure and decrease visual fields
6. Kinking of the Eustachian tubes can lead to increased ear infections
7. Sinus and nasal obstruction
8. Snoring
9. C1-2 move to one side causing persistent headaches and neck aches
10. The entire spine is curved causing extrusion of disks
11. One scapula is higher than the other giving pain in the interscapular area during driving and other use of the arms
12. The pelvis is rotated giving low back pain and disk extrusion
13. The shift of weight to one side makes one clumsier
14. The locking of the craniosacral pump causes the entire nervous system to use stagnant cerebrospinal fluid resulting in a general decrease of function
15. Migraine headaches



The human head has been likened to a bowling ball in weight and approximate size. The term "bowling ball syndrome" was given for problems arising from this ever present, downward pushing weight onto an improperly aligned skeletal structure. The bones of the skull apparently are not immobile as was previously believed. The "butterfly" shaped sphenoid cranial bone is the equivalent to the "keystone" top stone of a stone arch. If the keystone shifts, the whole arch will also experience a change in position. The sphenoid and the center of gravity of the head affects the position of rest of the body structure.



Injury or other reasons can cause the sphenoid to shift out of place, causing a disturbance in the "arch" of human structure. In one particular case, a woman's ears, shoulders, and hips were out of balance. The doctor demonstrated the mechanical correction of the sphenoid by pulsing tiny amounts of electricity (The Tennant Biomodulator) into the neck region of the trapezius muscles which seem to have a role in the correction. Quite interesting how this switched back on the cranio-sacral pump, which replenishes the nervous system by circulating the cerebral spinal fluid and causes those back and forth motions when the eyes are closed in standing position.

The Tennant Biomodulator PLUS

The Tennant Biomodulator® PLUS is similar in size and shape to a computer mouse. This makes it easily portable and ergonomic. The Tennant Biomodulator® PLUS has four advanced frequency sets that are simple to use and not available in any other devices. The Tennant Biomodulator® PLUS has a lightning fast processor and is easy to read with an illuminated assessment method which employs a series of LED lights. The device face plate's graphical representation demonstrates the process to the practitioner and private user the progress of the therapeutic session. .

Frequently Asked Questions Tennant Biomodulator® PLUS Cybernetic Biofeedback

Q. What is a Tennant Biomodulator® PLUS?

A. The Tennant Biomodulator® PLUS is a device created by Jerry Tennant, MD, after years of clinical research using Cybernetic Biofeedback technology. The Tennant Biomodulator™ has patent pending frequencies not found on any other biofeedback technology devices currently available. Biofeedback devices have been widely used in Russian hospitals since the early 1980's; however, it remained a military secret until perestroika. At that time, the inventors were issued a patent for the device, and they began to make it available to the West. We are proud to have been working with the Russian inventors to bring this incredible technology into the

USA for over and a half years (as of December 2004). Richard Kratz, MD, describes his experiences with Cybernetic Biofeedback Therapy as “highly effective therapy that provides noninvasive contact with the skin.” The device sends low 9-volt electrical signals to the brain by way of the nerves to stimulate the brain to activate the body’s own self-healing resources. Every cell and every organ in the body is controlled by and communicates with other cells and organs via electric signals. The skin, the brain and the nervous system are closely related since they are all derived from embryonic ectoderm.

Q. Does the Tennant Biomodulator® PLUS have FDA Approval / Acceptance?

A. The Tennant Biomodulator® PLUS (biofeedback-controlled electro-stimulator) is regulated by the United States Food and Drug Administration, listed under 21 CFR 882.5050. Generic Name: device, Biofeedback; Product Code HCC, Class II exempt from 510 (K) pre-market notification according to FDA Notice FR21ja98-84 as a battery-powered, professional use device for relaxation training and muscle reeducation. The Tennant Biomodulator™ is a Biofeedback Electro-stimulator is a quality medical instrument and is listed by the FDA as a Class II device. The FDA requires that the Tennant Biomodulator® PLUS be used by or upon the recommendation of a licensed health practitioner and a written prescription.

Q. What is the Relationship between Cybernetic Biofeedback and Tennant Biomodulator® PLUS?

A. Biofeedback, as defined by the National Library of Medicine MedLine database, is a process that uses instrumentation to give a person immediate and continuous signals of change in his bodily functions of which he is usually unaware. Biofeedback treatment with the Tennant Biomodulator® PLUS is non-invasive and drug-free. The device provides a welcome complement to allopathic medicine and leaves the mind alert. People treated with the devices usually report a pleasant, relaxed feeling of well being.

Q. Is it Safe?

A. The Tennant Biomodulator® PLUS has shown side effects to be low or non-existent. Please exercise caution when using the device until you attend the formal training. Training will provide you with the opportunity to receive maximum benefits. Do not use on a person with a pace maker or other electronic implant. Be careful not to touch the devices to any metal surface and do not use on the upper portion of the carotid arteries.

Q. What Does the Therapy Feel Like?

A. As the device is moved over the surface of the skin, a tingling prickly sensation is felt. In case of severe pain or acute conditions, the sensations may be stronger. Patients usually report that they experience an immediate reduction in pain and feel “energized” after a therapy session.

Q. How does the Tennant Biomodulator® PLUS work?

A. As with any therapy or treatment, patients need to accept responsibility for their health and understand the physical, mental, emotional, environmental, heredity and spiritual influences on wellness.

The Russian experience suggests that it can be effective for a very broad range of issues, including digestive, cardiovascular, respiratory, musculoskeletal, urinary, reproductive, and nervous systems. Western practitioners are reporting positive results with a wide variety of diseases and conditions. The term asymmetry (meaning something is different about the tissue characteristics in the vicinity) describes some of these such as:

- Color difference (reddening or pallor)
- Sensation (numbness or hyper-aesthesia)
- “Stickiness” in which the Tennant Biomodulator® PLUS drags with a magnet like quality as it is drawn over certain portions of the skin
- Sound changes (the machine begins to chatter electronically when it hits the right zone)
- Numerical display readings alter

* The statements above have not been evaluated by the FDA.

Q. What are the Benefits of Cybernetic Biofeedback Therapy?

A. Benefits include:

- Gentle Drugless & Non-invasive
 - Positive effects may appear after the first session
 - Recognition of true weak points of the body
 - May be used together with a standard drug treatment
 - Helps decrease use of large doses of drugs
 - Can help several conditions at the same time. The Tennant Biomodulator® PLUS offers a non-invasive, drug-free alternative medicine treatment.
 - This activates the body's own reserves in order to heal and make express diagnostics for recognition of weak points.
 - The Tennant Biomodulator® PLUS is a unique physical therapy device in that it maintains a constant "dialogue" with the body through the application of cybernetic feedback.
 - The treatment is individually adapted for each patient. It is painless.
 - Treatment is conducted by placing the device directly on the skin.
- *The statements above have not been evaluated by the FDA.

Q. How does the Tennant Biomodulator® PLUS employ Cybernetic Biofeedback Therapy?

A. Due to the influence on the body, cybernetic biofeedback using the Tennant Biomodulator® PLUS activates the nerve fibers including the thin C-fibers. In such fibers, the various groups of neuropeptides are the neuro-mediators. According to modern medical research, the body's biological functions are ensured by neuropeptides. For example, endorphin provides a pain relief effect, vasopressin regulates memory and so on. These devices make neuropeptides start working actively on the body's treatment. As a result, the body begins using its own reserves.

Q. What are some of the Effects of Cybernetic Biofeedback Therapy?

A. The effects may include:

- Therapeutic and revitalizing effects may appear after the first session
- Achieved effects have shown to be long-lasting
- Recognition of weak points of the body and positive influence on these
- Swift rehabilitation effects
- Rapid recovery of strength
- Improvement of general condition

* The above statements have not been evaluated by the FDA. © Senergy Medical Group 2006.



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